SECRET AMLASH-1

1 July 1964

MEMORANDUM FOR THE RECORD

SUBJECT: Test of Open Sight Hood for 7.62mm Belgium (FAL) Rifle

REFERENCE: A) Memo for Rcd. dated 25 May 1964, Subject: FAL Silencers/Sights, from C/WH/SA/MOB/PM
B) Memo for Rcd. dated 10 June 1964, Subject: Tests of Modified Sights for 7.62 Belgium (FAL) Rifle

1. On 15 and 16 June 1964, the undersigned and Mr. Bob Ricker, TSD/SDB went to Isolation to test an open sight hood for the 7.62mm Belgium (FAL) Rifle developed in answer to Ref. A. The Modified Williams peep sight developed previously in answer to Ref. A and reported on in Ref. B. proved unsatisfactory to the requester. The snap-on sight hood was then developed on a quick reaction basis to be simpler to install and easier to use than the Williams sight. In addition some improved underloaded 7.62mm NATO rounds having soft, annealed cases and cream of wheat filler were tested for performance. These were developed in hopes of correcting the erratic ammunition performance noted in Ref. B.

2. The open sight hood snaps over the existing rear sight of the FAL rifle, and in theory makes shooting in poor light or at night easier. It can be used with either standard factory loads or the underloaded ammunition in conjunction with the muzzle attachment silencer. The notch on the rear sight hood is "U" shaped and raised to compensate for the more curving trajectory of the low velocity ammunition. The hood is easily detached making the conventional peep sight available any time it is desired.

3. The attached data sheet summarizes the test results. It was found that some familiarization was necessary to get used to the open sight. Under ideal conditions the sight was as easy to use as the peep sight although it was more difficult to maintain uniform vertical grouping. The relationship between the eye and rear sight was found to be very critical. As the tests proceeded a change was noted in the point of impact vs. point of aim which was thought to be due to a change in sight picture on the part of the undersigned.

4. The improved ammunition was found to be quite consistant in performance. The use of cream of wheat filler to tamp the powder charge against the primer was an attempt to get more even ignition with correspondingly improved accuracy. The expended cartridge cases were checked periodically and no evidence was found of the soft annealed cases not expanding properly. During the tests the rifle and ammunition combination instilled a degree of confidence in the undersigned not present in the previous tests.

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5. Tests were conducted in the evening to determine the degree of usefulness of the sight in poor light. In this respect a 22 Caliber Hi-Standard pistol with folding shoulder stock and Bushnell 1.3X Phantom scope was tested in comparison. The scope was equipped with yellow filters to brighten the sight picture for low light level use. It was the opinion of both test personnel that the scope was superior to either the peep sight or open sight for as long as their was some illumination on the silhouette targets. Once the light failed the scope was completely useless although the undersigned could still discern targets with the naked eye out to 50 yds. All actual shooting was done with the open sight and some difficulty was experienced in hitting the targets at ranges of 100 yds. or more even at dusk. The closer targets could be easily hit up until it became too dark to see them at all. A large rain cloud moving from behind the firing position gradually obscured all available light. For the final shooting at 25 yds. occasional lightning flashes gave only a vague awareness of the target location. At no time during the night trials was there any muzzle flash visible from the under loaded ammunition and muzzle silencer combination. The gas port which was in the off position during the daylight trials was turned on at night but no flash was visible at the breech. A fine white cloud of cream of wheat powder was visible in front of the muzzle at almost full darkness but could not be seen more than 30 feet away.

6. Listener trials were conducted the following day to determine how far away an alert listener could discern the mechanical noise of the mechanism and that of the round being fired. Mr. Ricker walked away downwind at an angle of 90 degrees to the line of fire and stopped to listen every 25 paces. The undersigned fired single rounds, (hand actuating the mechanism) each time Mr. Ricker stopped. At 325 paces, or roughly 275 yds., Mr. Ricker reported he could still hear the mechanism being actuated, the round being fired, and the bullet striking a concrete pillar 200 yds. downrange. However, he stated that he might not have noticed the sound at that range had he not been listening for it specifically.

7. One of the major causes for concern at the start of the tests was that the cream of wheat filler might clog the silencer and render it ineffective. A total of 200 rounds were fired with the silencer in place and the noise level did seem to be higher at the finish of the second day. (Round numbers 180 to 200 were the ones expended during the previously mentioned listener trials). Inspection of the silencer at a later date revealed considerable cream of wheat residue in the screening. Sound level measurements made in the AMF sound lab showed that while the total noise level was no higher, the duration was relatively longer. This would make the silencer seem louder to near by observers but not increase the range at which it could be heard. However, from a standpoint of the ability for a listener to discriminate a silencer being fired from random noise, the longer duration gives him a better chance to recognize what he hears.

8. On 19 June 1964, the undersigned went to the warehouse at Franconia to try to fit the sight hood to other 7.65mm FAL rifles. It was suspected that the fit might be a problem when it would not fit over the rear sights of three FAL rifles at Isolation. Although it was later determined that the three rifles were of a different lot and may therefore have different tolerances on the rear sight casting, it was felt that further checking was necessary. Nine FAL rifles from the same lot as those obtained by WH/SA/MOB/PM were unpackaged and the sight hood tried on the rear sight. Of the nine, two were perfect fits and the other seven too thick for the hood to fit. This created a problem in that the sight hoods had to fit rifles which for operational reasons could not be measured before hand to determine the thickness of the rear sight blade. Providing adjustment in the slot of the sight hood would have complicated the fixture to the point where it could become operationally unsuitable. Therefore it was determined that the best solution was to provide several small files with the hoods. The peep sight on the rifles, a soft casting, was found to be quite easy to file. In most cases it would be necessary only to file several thousandths to obtain a proper fit. This procedure was explained to C/WH/SA/MOB/PM and he stated that it would be acceptable.

9. On 24 June 1964, three open sight hoods with accessories consisting of two files and a small screwdriver were turned over to C/WH/SA/MOB/PM. In addition, 400 rounds of improved underloaded ammunition with cream of wheat filler were provided as a replacement for the original 400 underloaded rounds.

10. On 29 June 1964, it was discovered that a scope was availabl for the 7.62mm Belgium (FAL) Rifle (Sniper Version) and in the Agency supply system. Steps are being taken to obtain a scope for evaluation. The results will be forwarded to C/WH/SA/MOB.

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TSD/EB

DDP/TSD/EB/DJH/EC

cc: C/TSD
C/WH/SA/MOB/PM

STANDARD VELOCITY AMMUNITION, DAYLIGHT:

RANGE	RAMP SETTING	SIGHT TYPE	POINT OF IMPACT (RELATIVE TO POINT OF AIM)	EXTREME SPREAD	NO. OF ROUNDS
100 yds.	No. 2	Peep	On	6 [illegible]"	5
100 yds.	No. 3	Peep	On	5 [illegible]"	5
100 yds.	No. 2	Open Hood	24" high	4 [illegible]"	5
100 yds.	No. 3	Open Hood	26" high	4 [illegible]"	5

[illegible]ERLOADED AMMUNITION, OPEN SIGHT HOOD, DAYLIGHT:

RANGE	RAMP SETTING	POINT OF IMPACT (RELATIVE TO POINT OF AIM)	EXTREME SPREAD	HORIZONTAL SPREAD	VERTICAL SPREAD	NO. OF ROUNDS
25 yds.	No. 2	3" high	1 3/4"	--	--	5
25 yds.	No. 6	3" low	2 3/4"	--	--	5
50 yds.	No. 6	On	5"	--	--	5
75 yds.	No. 6	4" left, 4" low	--	2"	7"	5
100 yds.	Full Elevation	6" left, 8" low	9"	--	--	10
100 yds.	Full Elevation	On (Diff. Shooter)	--	5"	13"	5
100 yds.	Full Elevation	8" left, 8" low	--	6"	8"	10
125 yds.	No 2	8" left, 18" low	--	9½"	11	5
125 yds.	Full Elevation	On (Changed Sight Picture)	--	6"	10"	8 (2 missed target)
150 yds.	Full Elevation	On (Changed Sight Picture)	--	6"	18"	8 (2 missed target)
[illegible] yds.	Full Elevation	6" low (Changed Sight Picture)	--	8"	26"	10

UNDERLOADED AMMUNITION, OPEN SIGHT HOOD, DUSK:

RANGE	NO. OF ROUNDS	NO. OF HITS	HORIZONTAL SPREAD	VERTICAL SPREAD	REMARKS
200 yds.	10	6	15"	23"	Could see target more clearly through Peep sight but no rounds were fired.
[illegible] yds.	10	6	6"	6"	Could see target very clearly with 1.3X scope.

UNDERLOADED AMMUNITION, ALMOST FULL DARK, OPEN SIGHT HOOD:

RANGE	NO. OF ROUNDS	NO. OF HITS	HORIZONTAL SPREAD	VERTICAL SPREAD	REMARKS
75 yds.	10	9	9"	9"	Peep sight useless
25 yds.	10	10	14"	25"	Could see targets out to 200 yds. with filtered scope at start of firing, could not see at all w/scope at finish.

[illegible]OERLOADED AMMUNITION, OPEN SIGHT HOOD, FULL DARK:

RANGE	NO. OF ROUNDS	NO. OF HITS	REMARKS
25 yds.	10	5 (scattered)	Target in total darkness, rain cloud overhead, intermittant lightning flashes gave a vague awareness of target location.